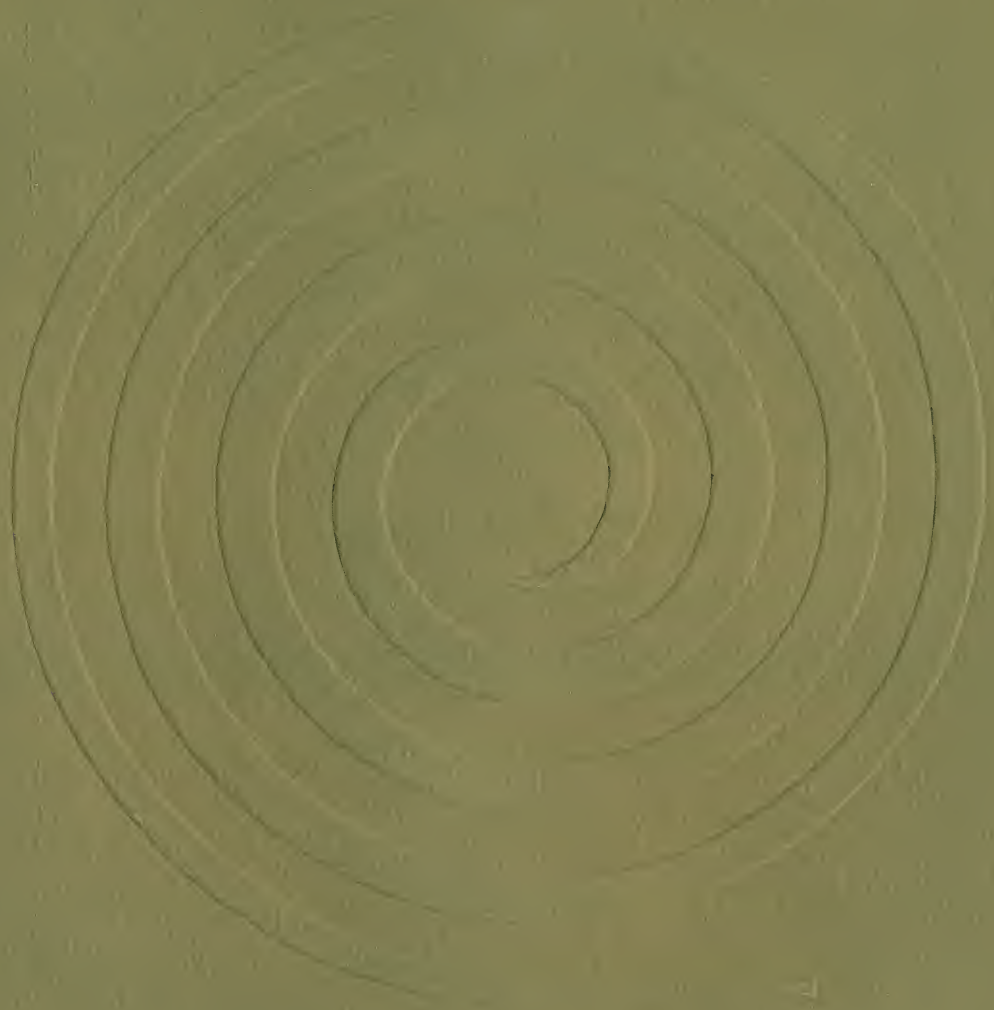


the search...

the development...

the rauland corporation of chicago is engaged in the research and development of special purpose electron devices and supporting systems.

the application . . .

industry . . .

monochrome and tri-color cathode ray tubes for television . . . high resolution cathode ray tubes for data display . . . image intensifier tubes for non-destructive testing applications . . . scan converter tubes and auxiliary equipment . . . engineered systems for use with existing electron tubes and other special purpose applications . . .

military . . .

data display systems . . . warfare vision aids . . . electron beam devices for airborne applications . . .

science . . .

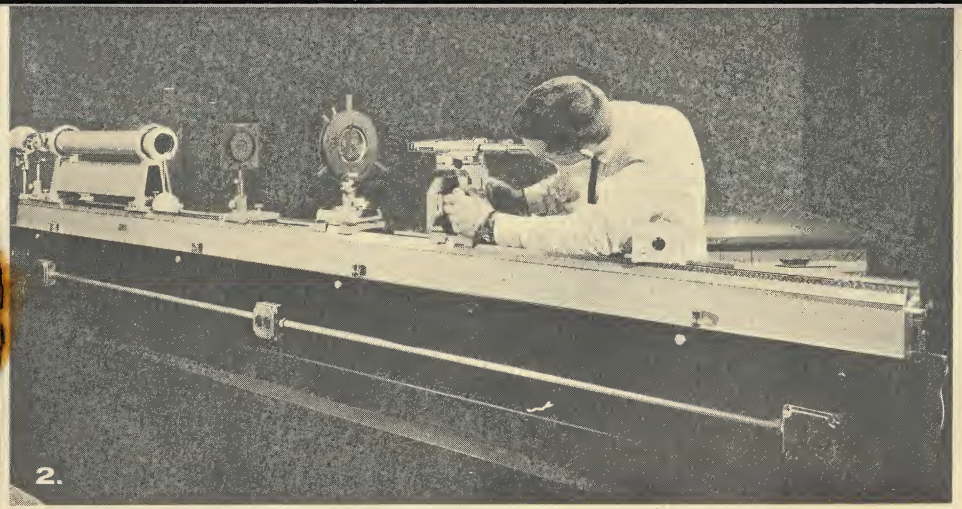
image intensifier tubes which encompass the spectrum from the infra-red to the gamma-ray region with associated systems capability . . . special purpose scan converter tubes and systems for varied applications . . . electronography tubes and cameras for astronomical research . . .

the search . . . the development . . . the application . . .

research begins with an idea . . . an idea leads to search . . . search to discovery . . . discovery to development and ultimate application.

1. *measurement of spatial frequency on a high resolution display CRT* **2.** *precision optical bench for experimental lens and lens system research* **3.** *ultra-high vacuum film deposition system* **4.** *phosphor particle size analysis* **5.** *infra-red spectrophotometer for chemical research* **6.** *experimental electrostatic imaging system*

the search . . . the development . . . the application . . .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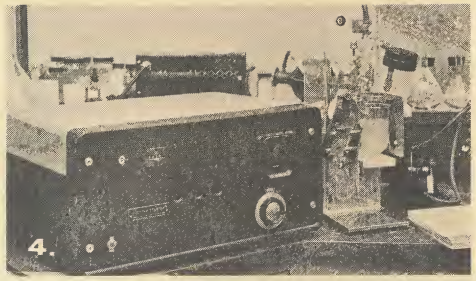
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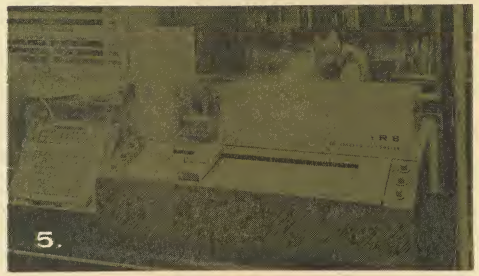
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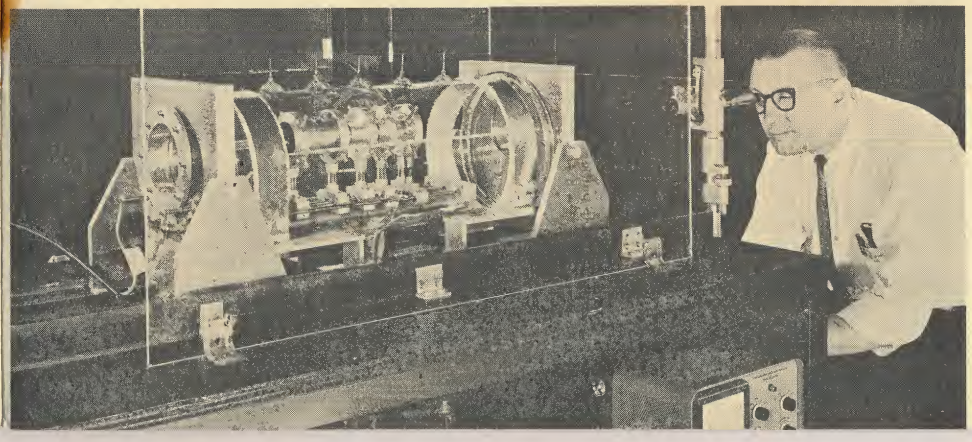


accomplishments to date include innovations adopted by the entire television industry . . . the grey glass faceplate for the picture tube; aluminized tubes, of which rauland was the first large-scale manufacturer; the rectangular tube; the low voltage electrostatically focused tube and the first picture tube with a deflection angle greater than 50°—all pioneered by rauland.

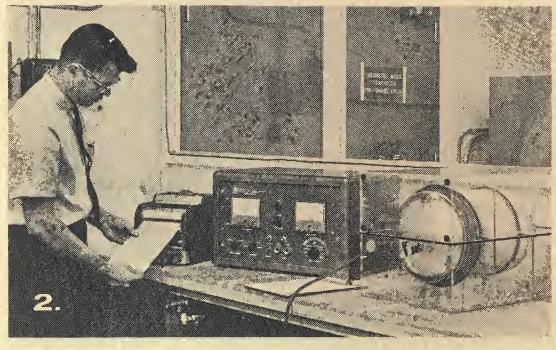
but, achievements form only the root soil . . . to keep the cycle of search, development, and application fruitful, it must periodically be enriched with fresh ideas.

the search . . . the development . . . the application . . .

since 1928, such ideas have been generated from rauland's start as a builder and marketer of communications equipment. over three decades later, its activities cover the entire spectrum of electronic data display devices and associated systems . . .

from standard items mass produced for the entertainment of millions, to sophisticated electronic components and systems for displaying information in fields as diverse as astronomy, medicine, the military, and industry.


1.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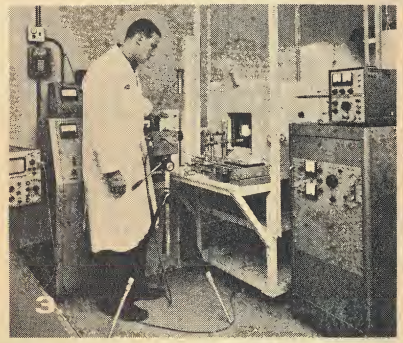
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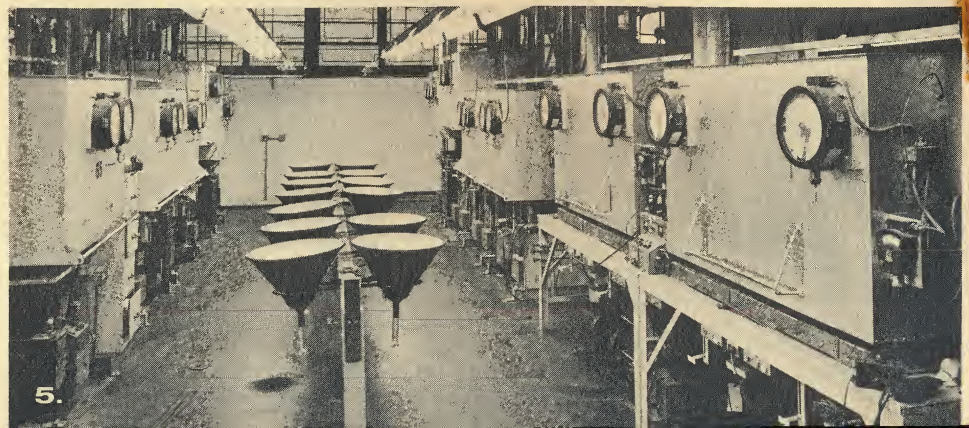
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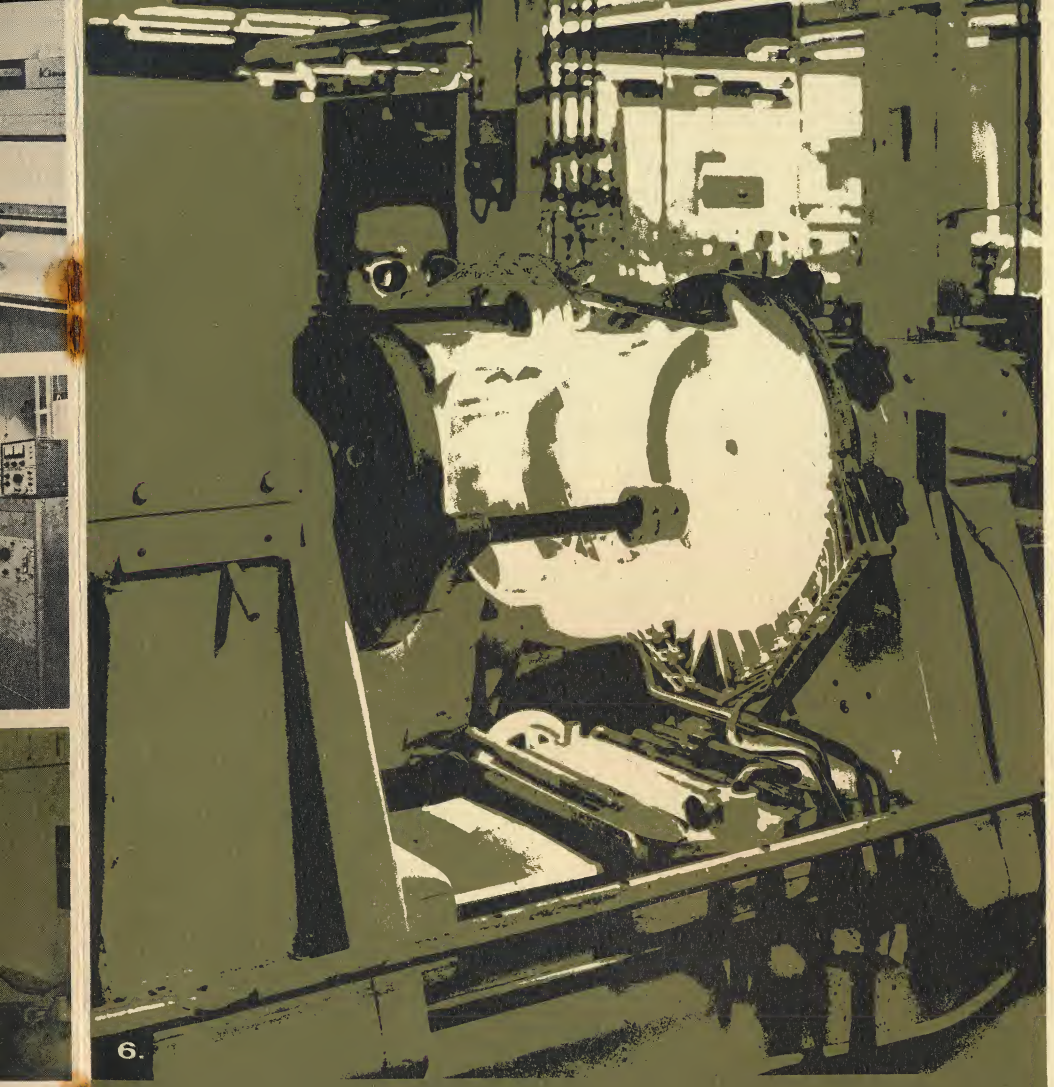


1. *clean facilities for critical component assembly* **2.** *monitoring the vacuum in an image intensifier tube* **3.** *evaluation of an experimental X-ray image tube* **4.** *bakeout and pump-down oven systems* **5.** *dual position exhaust stations for achieving ultra-high vacuums* **6.** *skilled glass work is essential to successful tube development*

the search . . . the development . . . the application . . .

in particular, there are six information display areas in which rauland is currently engaged in research and development.

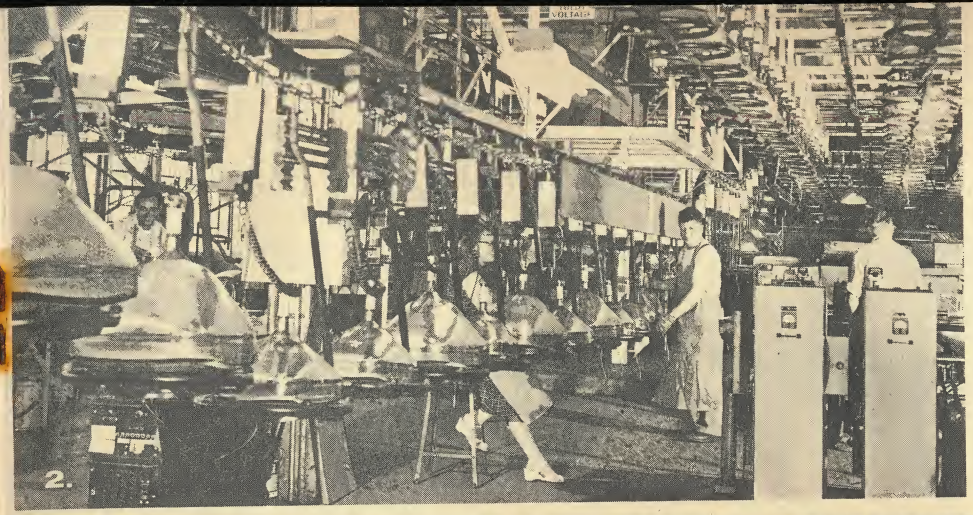
1. monochrome cathode ray tubes . . . rauland is among the largest tube manufacturers in the country, producing well over one million television picture tubes a year. in addition, the company has designed and developed special purpose tubes with widely varying functions—such as 12″ to 24″ diameter flat face cathode ray tubes for alpha-numeric and radar data presentation, flying spot scanners, high resolution cathode ray tubes (some utilizing fiber optic output windows), kilomegacycle oscilloscope tubes with traveling wave deflection structures, and high trans-conductance electron guns.

the search . . . the development . . . the application . . .

2. tri-color cathode ray tubes . . . the needs of color television initiated research in this area, and subsequent development of tri-color tubes has resulted in their high volume production. the automated color facility is continually growing, and the versatile production equipment is capable of mass producing virtually any type, size, or shape of tube foreseen. improved electron guns for tri-color tubes are constantly under development in rauland's electron gun laboratories.

3. storage tubes . . . the development of storage scan converters in which an input signal is converted to a different time base for readout purposes. some storage targets utilize electron bombardment induced conductivity; others utilize electrostatic charges. some recent developments are the first scan converter storage tube capable of recording phenomena of nanosecond duration . . . and the double-ended signal converter storage tube, used in the FAA traffic control system and a miniaturized-ruggedized version for airborne application.

1. *lens and mirror grinding and polishing facility* **2. & 4.** *the rauland corporation's black and white tube production* **3.** *intricate welding of electron gun assemblies* **5.** *phosphor screen application laboratory* **6.** *evaluation of phosphor purity in a tri-color CRT*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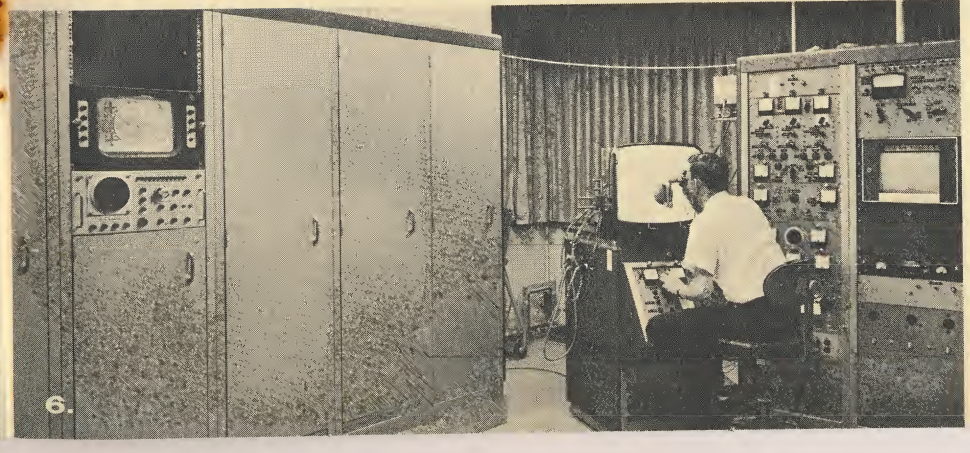

6.

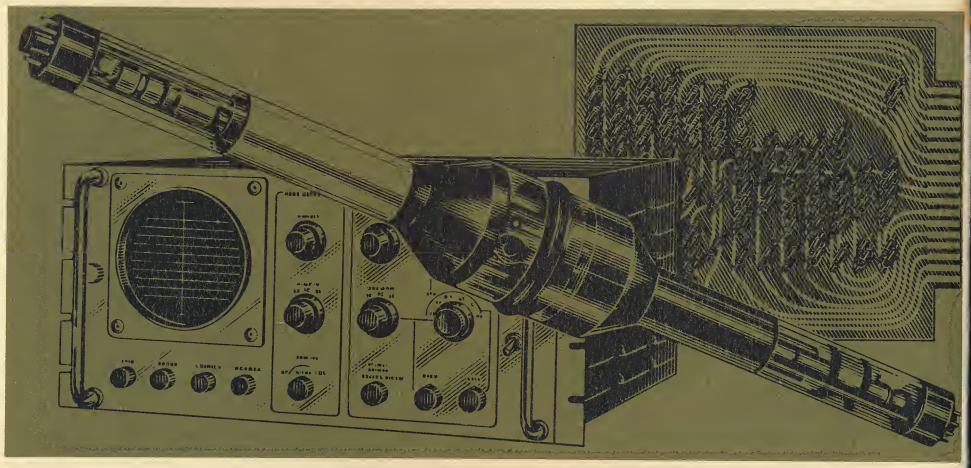
the search . . . the development . . . the application . . .

4. thin film techniques . . . in conjunction with solid state materials research, thin films are used in such applications as electron emitters, phosphor screens, and electronic conduction.

5. image intensifiers . . . devices which convert low level radiation into high-brightness visible displays. devices utilizing photoemission for energy conversion are currently being developed and fabricated—gamma-ray and X-ray intensifiers for non-destructive testing, X-ray intensifiers for diagnostic medicine, and light intensifiers for astronomical and military applications. to increase the brightness gain of image intensifier tubes, internal multiplication using cascaded stages is being successfully applied . . . and fiber optics are among several approaches in design being evaluated to increase resolution.

the search . . . the development . . . the application . . .

6. electronic systems . . . electronic devices and special purpose tubes are integrated into functional systems. applications are varied: commercial and military television, rocket borne systems, nuclear instrumentation, alpha-numeric data presentation techniques, radar, and environmental simulator systems. other areas of endeavor include industrial non-destructive radiographic testing, slo-scan video data transmission over common telephone lines . . . as well as ultra-fast transient pulse storage and analysis systems.



the professional staff of the rauland corporation has been a consistent innovator within the field of data display. the search has been challenging. the development fruitful. the application unending.

but, the story doesn't end here . . .

the search continues . . .

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